Space Weather Forecast

Issued on Saturday, 03 September 2022 at 00:03 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Chance of R1/R2 Radio Blackouts. Minor/Moderate Geomagnetic Storm expected on day 2 (4th Sep).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low but slowly increasing, with Common flares becoming stronger and more frequent. Of the four active regions on the visible disc, AR3089 remains the largest and most complex region. This region continues to grow, with proliferation of spots, but has somewhat simplified. The other regions are small and relatively simple.

A filament eruption was observed in the southeast around 1845 UTC. This will be analysed once sufficient imagery becomes available. There were no No Earth-directed CMEs (Coronal Mass Ejections) observed in the available imagery.

Solar Wind / Geomagnetic Activity: The solar wind was indicative of weak coronal hole influences. The solar wind speed remained slightly elevated but was erratic, fluctuating between 330-370km/s. The strength of the magnetic field was largely weak but increased after 02/1600 UTC, while the important north-south component became increasingly negative. Geomagnetic activity was Quiet with one provisional Unsettled interval between 02/2100-2400 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is at background levels, with no solar radiation storms occurring

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain largely Low, with an ongoing chance of Moderate flares at times, mostly from AR3089. However, a new region may rotate onto the northeast limb on day 3 (05th), potentially increasing the probabilities of a significant flare.

Solar Wind / Geomagnetic Activity: Solar winds are expected to remain slightly elevated on day 1, under small coronal hole influences. They should then become elevated or perhaps strong on day 2, due to the connection with the larger CH20/+. Geomagnetic activity is therefore expected to be Quiet to Unsettled on day 1, but Unsettled to Active with a few G1/G2 Minor/Moderate storm intervals on days 2 (04th), most likely generated by the preceding CIR (co-rotating interaction region). Geomagnetic activity then slowly returning to Quiet and Unsettled levels on days 3 and 4 (05th and 06th).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to remain below the Minor Radiation Storm level (S1). There remains a slight chance of further increases to or above the S1 level, should any significant flares occur from the large region on the visible disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	80	50	5
Strong	G3	No	1	10	5	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	25	25	25
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	3	3	3	3
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.